Combating Nuclear Smuggling

Breakout Panel #6: Coping with Megaterrorism Threats

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International Borders are Vulnerable to Illicit Trafficking

- Borders extend thousands of miles
- Border operators may be geographically isolated and poorly paid
- Borders are crossed by a number of transportation modes and millions of vehicles
  - Sea
  - Air
  - Land (trucks, cars)
  - Railway
- Border operations must balance economic and security needs
  - Border operations must facilitate the flow of legitimate cross-border trade and travel (i.e., economic viability) while also delivering necessary security
- Movement of illicit items may be easily hidden
  - Examples: materials for nuclear terror, drugs, persons (terrorists)
The Smuggling of Weapons-Usable Nuclear Material is an Ongoing Reality

Open source information

- Internal United Nations (UN) report — 130 terrorists groups may be capable of developing a homemade atomic bomb
  — "UN Says 130 Terrorist Groups Capable of Nuclear Attack", Sunday Herald, May 13, 2001. (Regarding a report by the UN Terror Prevention Branch)

- Nuclear Threat Initiative (NTI) report — Over last decade, terror groups have attempted to acquire stolen nuclear weapons, materials, expertise (e.g., Al Qaeda)

- International Atomic Energy Agency (IAEA) — 18 cases of seizures of stolen plutonium (Pu) or highly enriched uranium (HEU) over the past decade
  — Note: The 18 cases are confirmed by the states involved
  — IAEA’s Database on Illicit Trafficking of Nuclear and Other Radioactive Materials, “Incidents with Nuclear Material,”; URL at http://www.iaea.org/worldatom/Press/Focus/RadSources/Fact_Figures.html
A Number of Issues Have Impeded the Global Interdiction of Nuclear Materials Smuggling

• Bureaucracy (inherent in governments)\(^1\)
  — Threat reduction efforts delayed/bogged by bureaucratic procedures

• Distrust and lack of partnership\(^1\)
  — Slows cooperation to secure nuclear warheads, materials, technology and expertise

• Lack of appropriate coordination among various programs\(^2\)
  — Mechanisms to identify highest priorities
  — Avoid overlap

• Lack of clear plan to achieve intended outcomes\(^2\)
  — Identify goals, timetables, and resources
  — Identify roles and responsibilities

• Lack of effective global nuclear security standards\(^1\)
  — Standards for the security for nuclear materials

• Lack of funding\(^3\)
  — For example, IAEA has limited resources to devote to the problem of nuclear smuggling


International and US Programs are Making Progress to Control Nuclear Materials Crossing Borders

**Example international initiatives combating nuclear smuggling**

- **International Atomic Energy Agency (IAEA)**
  - Maintaining Illicit Trafficking Database (ITDB)
  - Training to combat nuclear smuggling

- **Group of Eight (G-8) Industrialized Democracies**
  - 1996 — Programme for Preventing and Combatting Illicit Trafficking in Nuclear Material
    - Primarily focused on improving information exchanges
  - 2002 — Global Partnership Against the Spread of Weapons and Materials of Mass Destruction
    - G-8 countries pledged $20 billion to the effort over 10 years...
    - Invite countries to employ the six principles to prevent terrorists from acquiring or developing nuclear, radiological, biological, chemical weapons...

- **The European Union Joint Research Center - Institute for Transuranium Elements (Karlsruhe, Germany)**
  - Collaborations to develop nuclear forensics science (support identification of the source of smuggled nuclear and radioactive materials)
International and US Programs are Making Progress to Control Nuclear Materials Crossing Borders  (Continued)

Example US programs combating nuclear smuggling

• Department of Energy (DOE) Second Line of Defense (SLD) program
  — Deter, detect, and interdict nuclear material smuggling across international borders
  — Primary mission is Special Nuclear Material; Secondary mission is “dirty bomb” material

• Department of State (DOS) Export Control and Related Border Security Assistance program  (US partner agencies include Customs Service and Coast Guard)
  — Provides training, equipment, regulatory, and legal assistance to control illicit nuclear and other trafficking in the newly independent states (NIS) and other regions

• Department of Defense (DOD) International Counterproliferation
  — Provide training and equipment to customs and law enforcement in the NIS, Southern Europe, and Eastern Europe

• Operation Safe Commerce
  — US public-private partnership to enhance security throughout international and domestic supply chains while enabling efficient cross-border movement of legitimate commerce
A Multi-Layered Defense is Required to Interdict Nuclear Smuggling

• **First Line of Defense** — Secure nuclear warheads and materials
  – Prevent theft through physical protection, material control and accounting systems

• **Second Line of Defense** — Deter, detect, and interdict nuclear smuggling
  – Develop integrated, sustainable systems that incorporate effective systems and technology, customs and border control, intelligence, and police measures

• **Homeland Security** — Prevent, respond, and recover to protect
  – Provide optimal balance of prevention, emergency response, and recovery that produce maximum protection to a population and readiness to respond and recover to/from all types of threats or emergencies while also minimizing intrusion(s) to the population
Sandia is Engaged in Border and Maritime Security

Operation Safe Commerce (OSC) - Pacific

Ports of Los Angeles/Long Beach

Second Line of Defense (SLD)

SLD Megaports
Sandia has a Major Role in the US DOE NNSA’s Second Line of Defense (SLD) Program

Program Objective

• Detect, deter, and interdict nuclear smuggling across Russian and other international border crossings

Sandia Role

• Develop integrated, sustainable systems to minimize risk of nuclear terrorism
• Technical lead for threat definition, physical security, vulnerability assessment, and system integration
• Support US Custom Service in addressing nuclear threat at megaports
Second Line of Defense
Accomplishments Through April 2003

• **More than 100 Surveys**
  - Sandia has performed more than one hundred surveys of Russian and Newly Independent States (NIS) sites …

• **More than 40 installations**
  - … and had completed the installation of security and nuclear material detection systems at over forty sites

• **At Various Types of Sites**
  - Sites included airports, seaports, railroad checkpoints, and border crossings

• **In Numerous Countries**
  - Activities had taken place in more than 20 countries

Survey activities at former Soviet Union checkpoint (October 2002)
Maritime Commerce Presents Numerous Challenges to US Homeland Security

- 95,000 miles of open US shoreline*
- 361 Ports*
- Container vessels move 95% of international trade*
  - Vessels move 90% of our war fighting material
- 7,500 foreign flag vessels annually*
  - 51,000 port calls
- 200,000 foreign crew members annually*
- Three Major Load Centers (NY-NJ, SEA/TAC, LA/LB)
  - > 40% of U.S. container imports pass through POLA/POLB
  - Over six million containers annually

Ports and Supply Chains Present Complex Federal, Commercial, and Security Problems

- Ports are often “wide open” with few security barriers
  - No/little real access control

- Multiple agencies and unions often participate in ports and supply chain functions

- Ports are often surrounded by high population density

- Sensitive relationships often drive operations
  - Unions
  - Terminal operators
  - Advocacy groups

- Ports and supply chains incorporate multiple targets, both hard (physical assets) and soft (people/information)
Sandia is the Maritime Threat Technical Lead for US DOE NNSA’s Second Line of Defense – Megaports

Program Objective
Reduce the risk to the US by helping foreign governments to improve their ability to detect, deter and interdict nuclear weapons and material originating at megaports for US-bound container shipments

- Cooperative agreement: US Customs Service (USCS) and DOE NNSA under Container Security Initiative (CSI)

Sandia Role
System integration role and technical lead for threat definition, physical security, vulnerability assessment, communications
Operation Safe Commerce (OSC) - Pacific

Ports of Los Angeles and Long Beach

Program Objective

• Increase security of maritime commerce while maintaining its viability – first focus on container security then overall supply chain from overseas ports of origin to final US destination

Sandia Role

• Security consultant, integrator, and project manager for Operation Safe Commerce – Pacific for the ports of Los Angeles and Long Beach
• Provide in-depth analysis of security effectiveness
• Identify and recommend security upgrades
• Evaluate prototype solutions
• Oversee implementation/integration of system solutions
Operation Safe Commerce

Representative Trade Lane

Locally Consolidated Freight -- Singapore to LA/LB
Attributes: Short dwell time in foreign port; high risk countries of origin (Pakistan, India, Indonesia, …)
Commodity: Freight All Kinds (FAK) Volume: 600 Containers (TEUs)/month

Commodity Origin: Factories in Pakistan, Indonesia, India, …

Road Transport:
Freight Forwarders

In Route Ports:
Shanghai, Tianjin, Hong Kong

US Port:
Los Angeles/Long Beach

Final Destinations:
Washington, D.C., other inland USA locations

Representative Technologies
• Terminal Routing Study
• IT Security/Red Team
• Port Security
• Seals (electronic, other)
• Tracking
• Credentialing
• Non intrusive imaging
• Isotopic identification

Container NVOCC Consolidation

Sandia National Laboratories
Sandia Also Supports the US DOE NNSA’s Radiological Threat Reduction Efforts

Program Objective

• Radiological Threat Reduction (RTR) is a DOE NNSA program started in FY 2003
• Reduce the threat of terrorist use of radioactive materials to create radiological dispersal devices (“dirty bombs”)

Sandia Role

• Lead the DOE NNSA development and worldwide implementation of the RTR program
• SNL teams are deployed to jointly work with cooperating countries, including Lithuania, Iraq, Russia (RF Navy), Greece, Tanzania, and Haiti
• Integration of RTR efforts into border and maritime security activities
• Coordination of RTR efforts with the IAEA
Summary

"... all nations have a mutual interest in addressing today’s threats... we need to work together."

— Ambassador Linton Brooks, Administrator of the DOE NNSA and April 2003 Sandia International Security Conference keynote speaker

- The threats associated with WMD are an international problem — the dangers of the 21st century represent threats that no nation can solve unilaterally
- Despite progress, the smuggling of weapons-usable nuclear material is an ongoing international reality
- These challenges should continue to be addressed in a spirit of cooperation and innovation
- Cooperation provides opportunities to combat nuclear terrorism — we must work to turn international/national initiatives into prioritized and effective global efforts that disrupt terrorists’ megaterror strategies